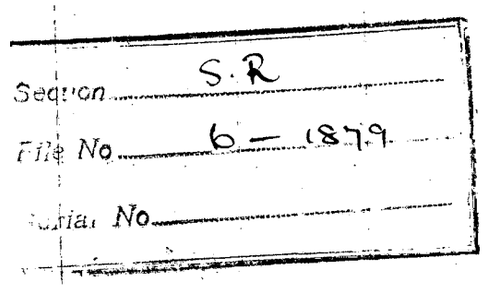
1879.

(S.R.)



Dec 1879.

Test of Spirits by Keeping the Thermometer continually therein.

Index

(1)

1879.

25.12.79

To Secretary.

Section 2.12
File No 6-1
Serial No 1

From The Dy. Commissioner
Bangalore Distt.

To

Secretary to Chief Commissioner,
Revenue ~~General~~ Department.

Dated 23?
Despatched } December
Received

Enclosures No. /

~~General~~ No. 126 / No. R } 1879—80.

Has the honor to forward copy of the Mysore Supervisors memo No. 155 of the 18th Instant, relative to the adoption of the Rule to keep the thermometer continually in the Spirit in the Course of testing for communication to the Distillers of the other Divisions if necessary—

I have &c

Dy. C.

R

(2)

(Xerox Copy)

Memorandum by the Abkari Hd. Superintendent of Bangalore, on the advantage of continuing all keeping the Thermometer in the liquor in the course of testing it.

Rec'd 12/1/80

Memo. No 5121-I dy
P. 872
Bangalore 6 January 1880.

Copy forwarded to the Dy Commissioners & Distts for information.

By order.

Recd

x Recd with the Bangalore Dist Dy Comrs Docket No. 426 dy 23d Dec. 79

Section S.R
File No 6-187
Serial No 2

From

The Secretary to the Chief Commissioner
of Mysore, Duftar Department.

To

Dated

Despatched

Received

Enclosures No.

Duftar General No.

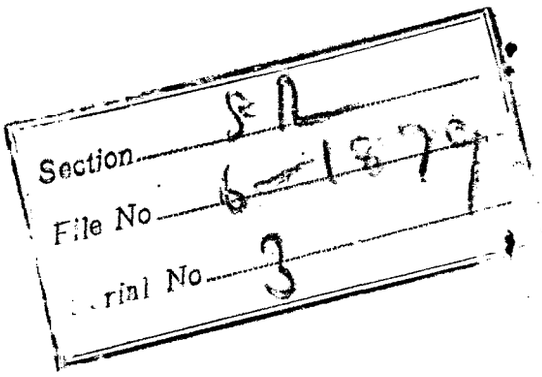
No.

1880.

(3) Kerr From The Commr &c.

To

Secretary to Chief Commissioner,
Revenue ~~General~~ Departm.



Dated ~~Sept.~~ January
Despatched 5th February
Received 6 - - - -

Enclosures No.

General No. 1674 / No. } 187 —7 .

Submits report with regard
the testing of the Thermo

6. 2. 80
Lo Rodney
rd

No 1674 (4)

Deputy Commissioner's Office,
Mysore District,
Camp Hunsur 27th January 1880.
Despts: 5th Feby "

To,
The Revenue Secretary to the
Chief Commissioner of Mysore

Sir,

With reference to your No. 5727-7/R 872 of 6th Instant, giving cover to a Memo of the Head Supervisor of the Bangalore District for information, I have the honor to point out that the information is misleading and if accepted or assumed to be right by any Officer without test may lead to irregularities and loss to Government: hence I consider it advisable to bring the same to your notice to prevent its circulation being accepted as authoritatively setting forth proved facts.

2. Though glad to see this attempt of the Supervisor to do his duty and point out what he thought to be for the interests of Government, :- (as accepting the statements in the Memo: as facts proved, opens a wide door for dishonesty and fraud) I am constrained to point out that the test must have been imperfectly carried out and that the following points in the Memo: require correction or explanation:-

1st In para 1. If the test by Thermometer showed Temperature of spirit 70°-70° on two occasions, why was that days spirit issued at

at 72°! (5)

2° Point - If, as asserted in para 2 under the old rule, the strength could be indicated at anything between 20° U. P. & 16.4° U. P. then either the Government Officials or the Distillers' Agent must blindly consent to wholesale fraud on their masters.

3° Point - In rule IV. Does "the Thermometer should not be exposed longer" mean "immersed longer", or exposed after immersion! I do not understand which, but either in practice is equally wrong.

3. So much for the points in Irons requiring correction or explanation, now for the theories it enunciates as understood by me.

1st Theory - That a Thermometer immersed in spirit does not indicate the temperature of that spirit if exposed to the atmosphere between Tests.

(a) This theory is contrary to the rules and directions accompanying Cases of Instruments and to all experience.

(b) If a Thermometer does not rise or fall when immersed in spirit or exposed to the air according to the Temperature of the one or the other (if at the time different) then the Thermometer must be out of order and should be condemned.

(C) If it does do so this theory is not

2ª Theory. That the variations in the temperature of a thermometer are less than those of the density of spirit tested at those various thermometrical temperatures. vide paras 1 & 2 of Memo: where a difference in a Thermometer reading from 70° to 72° is alleged to have indicated a density of 20° U. P. to 16° 4 U. P. i.e. against 2 degrees of Temperature more than 3/2 of density.

Tests by any one who understands the use of Instruments will burst this theory and show that there must have been some mistake in conducting the Test.

3ª Theory. Presuming "Exposed" has been used for "immersed" in Rule IV the theory is that 1 minute more than suffices to make a thermometer indicate the true temperature of spirit. The insufficiency of the time allowed can be at once tested by immersing a Thermometer in spirit and seeing in a given number of tests if the mercury will not continue to rise or fall for considerably longer than a minute. If therefore the "under one minute rule" be ordered for adoption the spirit tested at a Distillery may never be issued at its true strength. This rule should therefore be annulled and discontinanced.

4. Having denied the correctness of the theories set up, I proceed, as bound to do, to give proof in support of my conclusions.

5. In November 1878 (at the close of the month, that is a year before the Tests now circulated were made) I had very careful tests made by Mr Blake and on a more extended scale and give the results thereof:

First Test

6. Sonics spirit was tested from 6 A.M to 6 P.M every hour. The temperature of the spirit varied from 79° to 82°, but the density from 19°.3 to 19°.5 or only 2/10 of a degree, during the whole day time.

(a). The table of these tests is subjoined:-

A.M.	Temperature	Hydrometric indication	Density	Temperature of room
6	79°	66°	19°.3	75°
7	do	do	do	do
8	do	do	do	do
9	do	do	do	76°
10	do	do	do	do
11	do	do	do	77°
12	do	do	do	do
P.M.				
1	80°	65.8	do	do
2	80°	65.8	do	78°
3	81°	65.6	19°.4	79°
4	82°	65.4	19°.5	79°
5	82°	65.4	19°.5	78°
6	81°	65.6	19°.4	78°

Then

(8)

To No. 155 dated 18th December 1879.

I beg to report that I have since the 12th Instant introduced the rule noted in the margin in force in Her Majesty's Commissariat Department since 1877, relative to the treatment of the Thermometer while testing liquor, as it obviates the evil of accidentally passing out liquor either weaker or stronger than standard to which the present practice of keeping the Thermometer on the table is prone. This will appear self evident by a glance at the readings recorded below.

"When testing a consignment of several pipes of rum the Thermometer should be continually kept in the spirit. It should not be put on the table. This is done by using two trial glasses." Commissary Generals Circular No. 5147 of 1877 vide Commissariat Code Madras Presidency Sections 5 & 6 Paragraph Testing Vats.

Temperature of testing rum indicated by Gasellas Thermometer 70°

do. of liquor passed out today by do —— Fm. 72°

do. of liquor after a few minutes exposure by do. 70°

do. of Thermometer after being laid on the table and subjected to the action of the air on the alcohol on the glass by do 65°

2. I may add that the Thermometer under the old rule would have indicated any strength between 20° U. P to 16° U. P at the will of the Tester, and the time it was kept immersed in

the trial glass - Under the new rule on the other hand it is kept uniformly at the strength of the liquor being tested Viz 72. this day -

3. I beg respectfully to solicit confirmation of the foregoing rule to obviate its being considered optional to revert to the old practice at any time hereafter.

4. I beg also to submit information on some other point not generally known or followed in the distilleries of this Province and if considered of sufficient importance might in the interests of government be laid before the Chief Commissioner for general adoption.

Rule I. See para 1 of this memo.

Rule II. When a cask or pipe of liquor is to be tested some liquor should be removed in a trial glass and the thermometer immersed in it under rule I. The average of two tests of liquor taken from the Bung and Plug respectively made in a 2nd trial glass gives the test of the liquor. (A) In a vat the average of three tests made from liquor taken from the top, the middle cock, and bottom plug, gives the test of liquor (B.)

III. The liquor in the 1st trial glass should be changed every time a fresh cask &c is to be tested.

IV. The thermometer should not be exposed longer than one minute on an average in the liquor being tested in the 2nd trial glass.

Rule V. Lime wash with a little

Bung 74-67-4 = 19:6:0
Plug 75-67-4 = 20:2:0
Total 40-0=20:8:0
2

Vat: Temp. Reading Strength
Top 72 = 68-1 = 20:2:0
Middle 3-71 = 68-1 = 19:8:0
Bottom 71 = 68-2 = 20:0:0
Total 60-0=20
3

Conjee or gum added to make it tenacious, is considered a good coating for casks, pipes, and their frames, in store, against the attacks of the "cask borer"

I am
Sir
Your most obedient
Servant
J. G. McDonnell
St. Supervisor

Copy
J. Corbett
Dy. Commissioner

Second Test.

7. Then the spirit was tested after 1 and 2 hours exposure to the night air viz: at 8 & 9 P.M. respectively the result is also given.

		P.M.			
(a).	After 1 hours exposure	7 to 8	77°	66.4	19.1	78°
	—"— 2 —— do ——	7 to 9	74°	67.0	19°.0	77.

Third Test.

8. The next morning after 1/2 an hours exposure to the sun the spirit was tested at 9.30 A.M.: this result is also given.

	A.M.				
(a)	9.30	97°	62.0	19°.9	76°

9. These tests show that though the mercury in the Thermometer was regularly acted on by the spirit, and the spirit acted on by the changes in the temperature of the atmosphere, the night air, and exposure to the sun in the very way that might have been expected, the result of 16 tests gave a minimum of 74° against a maximum of 97° or 23° of variation in the Temperature of spirit, while the density of the spirit only varied from 19°.0 to 19°.9 or 9/10ths of a degree in the said 16 tests.

10. Though the above results being on record

record in my Office might have been sent you on receipt of the Communication under reply. I preferred having further tests made on the principle of the Bangalore one though more fully by Mr. Supervisor Blake, of whose ability to carry them out and care in doing so there can be no question. The result of his test is extracted and entered here from his report and shows that a thermometer, in order, immersed in spirit, is regulated by the intermediate Temperature of the spirit irrespective of exposure to the air; but that it i.e. the mercury, may take 2 minutes to become stationary, or in other words till it shows that it is brought up or down to the Temperature of the spirit and that the late action of the air or other circumstances have ceased to influence it.

Special Test by Supervisor Blake

11. "At half past 2 P.M. on the 20th Instant "the Thermometer was at 74° before immersion "in the spirit: the mercury rose to 76° after "immersion in about 2 minutes and became "stationed at that point, which of course was "the temperature of the spirit at that time. "The thermometer was then left 'continually' in "the same trial glass of spirit till 3 o'clock "(half hour) by which time the temperature "of that spirit was indicated by the same)

Thermometer still in it, at 78°(2')- Then some fresh spirit was drawn from the same vat, at the same tap, in a 2d. trial glass and the Thermometer taken from the 1st glass and immersed into the 2d. glass of spirit without any delay: the mercury fell almost immediately to 77°(1') and became stationed, which was the temperature of the spirit at that moment. The Thermometer was then removed from the spirit and placed on the table for 5 minutes, to allow the air to play upon it, by which time the mercury had fallen to 71°(6'). Then some more fresh spirit was drawn in a trial glass from the same vat and at the same tap and the Thermometer (which was at 71°) immersed into it; the mercury began to rise at once and continued doing so till it was stationed again at 77°(6') during a period of about 2 minutes, which of course was the temperature of the spirit at that time as shewn above; with the above variation in temperature, the difference in density of the said spirit was only 4/10th of a degree, not even half a degree."

12. In Conclusion, I have the honor to remark that as the Memo: was sent for information and not for authoritative

guidance, I propose adhering to the present practice in force, and should Government deem it advisable to order further tests to be made by other independent competent persons, it might be of use to publish the results, so as to prevent loss to Government arising from the false theories set forth in the Memorandum being dishonestly put into practice in any Distillery and the Memorandum quoted as an authority for such false issue of spirit, an excuse it might be inconvenient for Government to disallow.

I have the honor to be,

Sir,

Your most obedient Servant,

Deputy Commissioner,

Ryzore District.

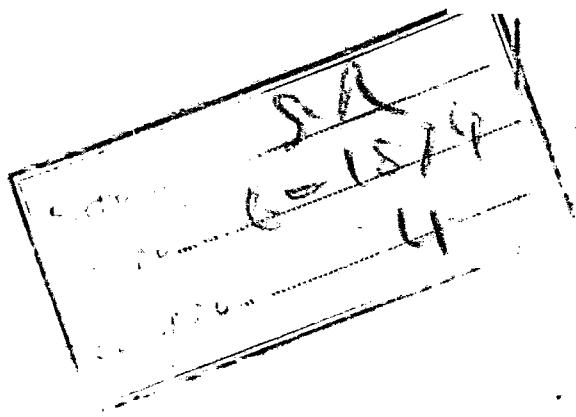
31-1-80
Depy Secy
Subd Secy
VR
2/2/80

1880.

From The Deputy Commissioner
Shimoga District.

To

Secretary to Chief Commissioner,
Revenue ~~General~~ Department.



Dated 28th
Despatched 29th January/80.
Received 31st

Enclosures No.

General No. 228 / No. } 1879-80.

With reference to the memo
received with docket No. 5121/87
dated 6th instant, on the subject
of testing liquor in the Distilleries
the undersigned has the honor
to suggest that the rule pro-
-posed by Mr. McDonnell
be ordered to be translated
into Kanarese, and a few copies
be printed for guidance in
the Distilleries. The subject is
so technical that for the
sake of uniformity, it is
desirable that an intelligible
vernacular version of the
method of testing proposed
should be issued for the
information of the servants
of the Distilleries.

I have the honor
Deputy Commissioner
Shimoga